

DOCKET NO. SA-228

EXHIBIT NO. 17C

NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C.

**NTSB SAFETY RECOMMENDATIONS REGARDING LITHIUM
BATTERIES AND RESPONSE HISTORY**



Recommendations & Accomplishments

Rec #: A-99-080
NTSB Status: Open - Acceptable Response
Issue date: 11/16/1999
Accident Date: 4/28/1999
Source Event: INCIDENT
Location: LOS ANGELES California

Mode: AVIATION
Most Wanted List: No
Closed date:

Report Number:
Accident ID: DCA99MZ005

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Background Synopsis:

ON 4/28/99, A FIRE DESTROYED FREIGHT, INCLUDING LITHIUM BATTERIES, ON TWO AIRCRAFT CARGO PALLETS AT THE NORTHWEST AIRLINES CARGO FACILITY AT LOS ANGELES INT'L. AIRPORT. THE PALLETS HAD BEEN TAKEN OFF AN INBOUND PASSENGER-CARRYING FLIGHT FROM OSAKA, JAPAN. THE AIRCRAFT WAS A BOEING 747, OPERATED BY NORTHWEST AIRLINES AS FLIGHT 0026. THE NATIONAL TRANSPORTATION SAFETY BOARD'S INVESTIGATION OF THIS INCIDENT REVEALED THAT LITHIUM BATTERIES LIKELY PRESENT A SERIOUS FIRE HAZARD TO AIR TRANSPORTATION REQUIRING IMMEDIATE ATTENTION. CURRENTLY, LITHIUM BATTERIES OF THE TYPE INVOLVED IN THE APRIL 28 FIRE CAN BE TRANSPORTED ON BOTH PASSENGER-CARRYING AND CARGO-ONLY AIRCRAFT BUT ARE NOT CLASSIFIED AS A HAZARDOUS MATERIAL REQUIRING APPROPRIATE IDENTIFICATION, MARKING, LABELING, AND TESTING.

Recommendation:

THE NTSB RECOMMENDS THAT THE PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION (ORIGINALLY ISSUED TO RSPA): WITH THE FAA, EVALUATE THE FIRE HAZARDS POSED BY LITHIUM BATTERIES IN AN AIR TRANSPORTATION ENVIRONMENT AND REQUIRE THAT APPROPRIATE SAFETY MEASURES BE TAKEN TO PROTECT AIRCRAFT AND OCCUPANTS. THE EVALUATION SHOULD CONSIDER THE TESTING REQUIREMENTS FOR LITHIUM BATTERIES IN THE UNITED NATIONS'S TRANSPORT OF DANGEROUS GOODS MANUAL OF TESTS AND CRITERIA, THE INVOLVEMENT OF PACKAGES CONTAINING LARGE QUANTITIES OF TIGHTLY PACKED BATTERIES IN A CARGO COMPARTMENT FIRE, AND THE POSSIBLE EXPOSURE OF BATTERIES TO ROUGH HANDLING IN AN AIR TRANSPORTATION ENVIRONMENT, INCLUDING BEING CRUSHED OR ABRADED OPEN.

Safety Recommendation History for A-99-080 PHMSA

[Close](#)

Page 1 of 1
8 records found

Response Date: 3/29/2000	From: Addressee
Response: Letter Mail Controlled 04/06/2000 3:33:05 PM MC# 2000498 RSPA, IN COORDINATION WITH FAA, IS RE-EVALUATING BOTH THE HAZARDS POSED BY LITHIUM BATTERIES IN AIR TRANSPORT AND THE SAFETY MEASURES NECESSARY TO PROTECT AN AIRCRAFT AND ITS OCCUPANTS. OUR EVALUATION ENCOMPASSES THE CURRENT TESTING REQUIREMENTS OF THE UNITED NATIONS TRANSPORT OF DANGEROUS GOODS MANUAL OF TESTS AND CRITERIA AS WELL AS CURRENT REGULATORY REQUIREMENTS. IN RECENT MEETINGS WITH BATTERY INDUSTRY REPRESENTATIVES, WE HAVE REQUESTED INFORMATION ON BATTERY RESISTANCE TO MECHANICAL AND HEAT DAMAGE AND THE HAZARDS PRESENTED BY DAMAGED BATTERIES.	
Response Date: 6/27/2000	From: NTSB
Response: THE SAFETY BOARD APPRECIATES RSPA'S ACTIONS THUS FAR. HOWEVER, THE BOARD IS CONCERNED THAT THESE ACTIONS DO NOT INCLUDE TESTING OR CONSIDERATION OF ROUGH HANDLING, INCLUDING BEING CRUSHED OR ABRADED OPEN. THIS CONDITION WAS SPECIFICALLY MENTIONED IN THE RECOMMENDATION AND WAS A FACTOR IN THE INCIDENT THAT PROMPTED THE RECOMMENDATION. PENDING THE RESULTS OF RSPA'S EVALUATION OF THE HAZARDS AND SAFETY MEASURES NECESSARY FOR LITHIUM BATTERY SHIPMENT IN AIR TRANSPORT, INCLUDING DAMAGE FROM ROUGH HANDLING SUCH AS BEING CRUSHED OR ABRADED OPEN, A-99-80 IS CLASSIFIED "OPEN--ACCEPTABLE RESPONSE."	
Response Date: 10/24/2000	From: Addressee
Response: Letter Mail Controlled 10/30/2000 1:38:06 PM MC# 2001605 On September 7, 2000 RSPA published an Advisory Notice, a copy of which is enclosed for your information, that: (1) Informed persons of the incident and the potential hazards that shipments of lithium batteries may present while in transportation, (2) Recommended actions to offerors and transporters to ensure the safety of such shipments, (3) Provided information concerning the current requirements for the transportation of lithium batteries, (4) Informed persons of recommendations that we received from the National Transportation Safety Board (NTSB) on the transportation of lithium batteries and our response to those recommendations, (5) Informed persons of the actions we have taken to date and plan to take in the future to address the hazards of these batteries, and (6) Provided information concerning initiatives being taken by members of the battery manufacturing and distribution industry to address concerns these batteries. relating to transportation of these batteries.	
Response Date: 6/13/2001	From: NTSB
Response: The Safety Board notes that although publishing the Advisory Notice is a commendable activity, it does not address the intent of these recommendations. The Board's June 27, 2000, response to RSPA's March 29, 2000, letter about these recommendations discussed the specific actions necessary to satisfy Safety Recommendations A-99-80, -82, and -83. In its March 29, 2000, letter, RSPA informed the Board that in coordination with the FAA, it is re-evaluating the hazards posed by	

lithium batteries in air transport and the safety measures necessary to protect an aircraft and its occupants, including an evaluation of the current testing requirements of the United Nations' Transport of Dangerous Goods Manual of Tests and Criteria and current regulatory requirements. Pending the results of RSPA's evaluation of the hazards and safety measures necessary for lithium battery shipment in air transport, including damage from rough handling such as being crushed or abraded open, Safety Recommendation A-99-80, remains classified "Open-Acceptable Response."

Response Date:
6/10/2002

From:
Addressee

Response:

Letter Mail Controlled 06/20/2002 3:13:33 PM MC# 2020614 We recently published a Notice of Proposed Rulemaking (NPRM) entitled "Hazardous Materials: Transportation of Lithium Batteries." A copy of the NPRM is enclosed. In the NPRM, we propose changes to test methods for lithium batteries; revisions to exceptions for small batteries, including new marking requirements; elimination of certain exceptions for larger batteries; and other modifications. These proposed changes are intended to enhance the safe transportation of lithium batteries and harmonize our domestic requirements with changes recently made to international transportation standards in the United Nations Recommendations on the Transport of Dangerous Goods. We are continuing to reevaluate the hazards posed by lithium batteries in transportation. We are collecting information from lithium battery manufacturers, shippers, and Federal agencies with extensive experience in testing and use of lithium batteries. When we complete our evaluation, we will initiate any additional actions necessary to assure that lithium batteries are transported safely. We will keep you informed of our progress. If you have any questions, please contact me or Suzanne TeBeau, Associate Administrator for Policy and Congressional Affairs, at (202) 366-4831

Response Date:
9/26/2002

From:
NTSB

Response:

On April 2, 2002, RSPA published a notice of proposed rulemaking (NPRM) titled "Hazardous Materials: Transportation of Lithium Batteries," which proposes changes to test methods for lithium batteries; revisions to exceptions for small batteries, including new marking requirements; elimination of certain exceptions for larger batteries; and other modifications. RSPA reports that it is continuing to reevaluate the hazards posed by lithium batteries in transportation by collecting information from lithium battery manufacturers, shippers, and federal agencies with extensive experience in testing and use of lithium batteries. On June 14, 2002, the Safety Board submitted comments to the docket for the NPRM. The Board's comments noted that although the measures proposed in the NPRM are responsive to element (1) of Safety Recommendation A-99-80-the testing requirements in the UN recommendations-the NPRM does not propose standards that fully address elements (2) and (3)-the involvement of packages containing large quantities of tightly packed batteries in a cargo compartment fire, and the possible exposure of batteries to rough handling in an air transportation environment, including being crushed or abraded open. The Board notes that RSPA states it is continuing to evaluate the hazards posed by lithium batteries and will initiate additional actions as deemed necessary upon completion of the evaluation. The Board urges RSPA to expedite its evaluation. Pending issuance of a final rule based on the NPRM and development and issuance of appropriate standards that consider the potential involvement of packages with large quantities of lithium batteries in a cargo compartment fire on an airplane and the potential exposure of lithium batteries to rough handling during air transportation, Safety Recommendation A-99-80 remains classified "Open--Acceptable Response."

Response Date:
2/28/2005

From:
Addressee

Regarding Pipeline and Hazardous Materials Safety," the DOT wrote: Advisory notice issued in September 2000, followed by NPRM in April 2002 and interim final rule on December 15, 2004. FAA issued a close-out letter requesting classification as "closed,acceptableaction."

Response Date:
7/6/2005

From:
NTSB

Response:

The Safety Board notes that on December 29, 2004, RSPA issued an interim final rule to prohibit the shipment of primary lithium batteries as cargo on board passenger-carrying aircraft. The interim final rule also establishes restrictions for shipping on board passenger-carrying aircraft equipment containing or packed with primary lithium batteries. Under the interim final rule, the number of lithium batteries contained or packed in such equipment cannot exceed the number of batteries needed to power the equipment, and the lithium content of each battery cannot exceed a specified threshold. Further, the gross weight of the package containing the equipment item cannot exceed 5 kg (11 lbs). The ban applies to all U.S. carrier flights and those of foreign carriers into and out of the United States. The Board further notes that this ban was based on a study documented in a June 2004 report published by the FAA titled Flammability Assessment of Bulk-Packed, Nonrechargeable Lithium Primary Batteries in Transport Category Aircraft, DOT/FAA/AR-04/28 by Harry Webster. This report documents the results of a study conducted at the FAA's William J. Hughes Technical Center that evaluated the fire risk posed by shipment on airplanes of primary lithium batteries. The study found that such shipments pose a significant fire risk. The RSPA rulemaking and the FAA study complete this recommendation with respect to primary lithium batteries. However, the risks posed by the shipment of secondary (rechargeable) lithium batteries remains unclear. Different chemistry is involved with operation of these batteries, and both the RSPA regulation and the FAA study excluded secondary lithium batteries. However, in the new regulation, RSPA stated in Section IV D, "Secondary Lithium (Rechargeable/Lithium Ion) Batteries and Cells," that RSPA and the FAA have concerns with secondary lithium batteries, but the risks of shipping these batteries with respect to their ability to burn in an atmosphere containing Halon (the fire extinguishing agent used in aircraft cargo holds) are unclear. That section also states that RSPA and the FAA will continue to study the hazards associated with shipment of secondary lithium batteries. The Safety Board is currently investigating an incident involving a fire in a package of secondary lithium ion batteries that occurred August 7, 2004, at the FedEx terminal in Memphis, Tennessee. Although RSPA and the FAA have fully responded to this recommendation with respect to primary lithium batteries, the question of the fire risk posed by secondary lithium batteries remains. Pending investigation of the fire risks posed by the shipment of secondary lithium batteries, and appropriate rulemaking as a result, Safety Recommendation A-99-80 remains classified "Open--Acceptable Response."

Note:

Please note that the Addressee's incoming letter's text is not posted until the NTSB's outgoing letter is posted as well.





Recommendations & Accomplishments

Rec #: A-99-081
NTSB Status: Closed - Unacceptable Action
Issue date: 11/16/1999
Accident Date: 4/28/1999
Source Event: INCIDENT
Location: LOS ANGELES California

Mode: AVIATION
Most Wanted List: No
Closed date: 6/13/2001

Report Number:
Accident ID: DCA99MZ005

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Background Synopsis:

ON 4/28/99, A FIRE DESTROYED FREIGHT, INCLUDING LITHIUM BATTERIES, ON TWO AIRCRAFT CARGO PALLETS AT THE NORTHWEST AIRLINES CARGO FACILITY AT LOS ANGELES INT'L. AIRPORT. THE PALLETS HAD BEEN TAKEN OFF AN INBOUND PASSENGER-CARRYING FLIGHT FROM OSAKA, JAPAN. THE AIRCRAFT WAS A BOEING 747, OPERATED BY NORTHWEST AIRLINES AS FLIGHT 0026. THE NATIONAL TRANSPORTATION SAFETY BOARD'S INVESTIGATION OF THIS INCIDENT REVEALED THAT LITHIUM BATTERIES LIKELY PRESENT A SERIOUS FIRE HAZARD TO AIR TRANSPORTATION REQUIRING IMMEDIATE ATTENTION. CURRENTLY, LITHIUM BATTERIES OF THE TYPE INVOLVED IN THE APRIL 28 FIRE CAN BE TRANSPORTED ON BOTH PASSENGER-CARRYING AND CARGO-ONLY AIRCRAFT BUT ARE NOT CLASSIFIED AS A HAZARDOUS MATERIAL REQUIRING APPROPRIATE IDENTIFICATION, MARKING, LABELING, AND TESTING.

Recommendation:

THE NTSB RECOMMENDS THAT THE RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION: PENDING COMPLETION OF YOUR EVALUATION OF THE FIRE HAZARDS POSED BY LITHIUM BATTERIES IN AN AIR TRANSPORTATION ENVIRONMENT, PROHIBIT THE TRANSPORTATION OF LITHIUM BATTERIES ON PASSENGER-CARRYING AIRCRAFT.

Safety Recommendation History for A-99-081 RSPA

[Close](#)

Page 1 of 1
5 records found

Response Date: 3/29/2000		From: Addressee
Response: Letter Mail Controlled 04/06/2000 3:33:05 PM MC# 2000498 TAKING INTO ACCOUNT THE HAZARDS THAT LITHIUM BATTERIES PRESENT IN TRANSPORTATION, THE UNUSUAL NATURE OF THE LAX INCIDENT, THE NUMBER OF LITHIUM BATTERIES THAT HAVE BEEN TRANSPORTED SAFELY ABOARD PASSENGER-CARRYING AIRCRAFT, AND THE POTENTIAL ECONOMIC CONSEQUENCES OF A BAN - PARTICULARLY WITH REGARD TO THE CONSUMER PRODUCTS INDUSTRY - RSPA CANNOT JUSTIFY AN IMMEDIATE PROHIBITION ON THE TRANSPORTATION OF LITHIUM BATTERIES ON PASSENGER-CARRYING AIRCRAFT. FOR THE SAME REASONS, RSPA CANNOT JUSTIFY THE IMMEDIATE IMPOSITION OF A REQUIREMENT TO MARK AND LABEL PACKAGES CONTAINING LITHIUM BATTERIES. ALTHOUGH THE LAX INCIDENT DOES DEMONSTRATE THAT LITHIUM BATTERIES MAY PRESENT A RISK TO AN AIRCRAFT, RSPA BELIEVES THAT THE RISKS PRESENTED BY LITHIUM BATTERIES CAN BE MITIGATED IF THE BATTERIES ARE APPROPRIATELY PACKAGED AND HANDLED IN TRANSPORTATION, AND THE HAZARDS OF DAMAGED LITHIUM BATTERIES ARE UNDERSTOOD BY CARGO HANDLING PERSONNEL. ACCORDINGLY, RSPA WILL INITIATE ALTERNATIVE ACTIONS TO ADDRESS THE RISK LITHIUM BATTERIES PRESENT IN AIR TRANSPORTATION. FIRST, WITH THE ASSISTANCE OF FAA, RSPA WILL DEVELOP AND DISTRIBUTE INFORMATION AIMED AT SHIPPERS AND AIRLINE PERSONNEL ON THE POTENTIAL HAZARDS OF LITHIUM BATTERIES. THIS INITIATIVE WILL HIGHLIGHT THE HAZARDS THAT LITHIUM BATTERIES PRESENT WHEN THEY HAVE BEEN DAMAGED. SECONDLY, BASED ON THE FINDINGS OF OUR EVALUATION, RSPA WILL INITIATE RULEMAKING ACTION AS NECESSARY TO ADDRESS THE CLASSIFICATION, HAZARD COMMUNICATION, PACKAGING AND OPERATIONAL CONTROLS NEEDED TO MANAGE THE RISKS ASSOCIATED WITH THE TRANSPORTATION OF LITHIUM BATTERIES ABOARD AIRCRAFT.		
Response Date: 6/27/2000		From: NTSB
Response: THE SAFETY BOARD IS DISAPPOINTED THAT RSPA DOES NOT BELIEVE THAT THE RISK POSED BY SHIPMENT OF LITHIUM BATTERIES IS SUFFICIENT TO JUSTIFY A PROHIBITION ON THEIR SHIPMENT BY PASSENGER-CARRYING AIRCRAFT OR A REQUIREMENT TO MARK AND LABEL PACKAGES CONTAINING LITHIUM BATTERIES. GIVEN THE CIRCUMSTANCES OF THE LAX INCIDENT, THE EVIDENCE CITED IN THE RECOMMENDATION LETTER THAT AIRCRAFT PALLETS CONTAINING LARGE QUANTITIES OF BATTERIES MAY BE UNUSUALLY SUSCEPTIBLE TO OVERTUNING, AND THE CONCERN THAT LITHIUM BATTERIES DAMAGED DURING HANDLING AND PLACED IN A CARGO COMPARTMENT MAY RESULT IN AN IN-FLIGHT FIRE, THE SAFETY BOARD BELIEVES THAT LITHIUM BATTERIES SHOULD NOT BE EXCEPTED FROM IDENTIFICATION AS A HAZARDOUS MATERIAL WHEN TRANSPORTED BY AIR. THE POSSIBILITY OF ANY IN-FLIGHT FIRE IS NOT ACCEPTABLE. THEREFORE, PENDING THE PROHIBITION ON THE TRANSPORTATION OF LITHIUM BATTERIES ON PASSENGER-CARRYING AIRCRAFT, A-99-81 IS CLASSIFIED "OPEN--UNACCEPTABLE RESPONSE."		
Response Date: 10/24/2000		From: Addressee
Response: Letter Mail Controlled 10/30/2000 1:38:06 PM MC# 2001605 On		

<p>September 7, 2000 RSPA published an Advisory Notice, a copy of which is enclosed for your information, that: (1) Informed persons of the incident and the potential hazards that shipments of lithium batteries may present while in transportation, (2) Recommended actions to offerors and transporters to ensure the safety of such shipments, (3) Provided information concerning the current requirements for the transportation of lithium batteries, (4) Informed persons of recommendations that we received from the National Transportation Safety Board (NTSB) on the transportation of lithium batteries and our response to those recommendations, (5) Informed persons of the actions we have taken to date and plan to take in the future to address the hazards of these batteries, and (6) Provided information concerning initiatives being taken by members of the battery manufacturing and distribution industry to address concerns these batteries. relating to transportation of these batteries.</p>	
<p>Response Date: 6/13/2001</p> <p>Response: The Safety Board notes that although publishing the Advisory Notice is a commendable activity, it does not address the intent of these recommendations. In its March 29, 2000, letter to the Safety Board, RSPA stated that it could not justify an immediate prohibition on the transportation of lithium batteries on passenger-carrying aircraft, nor could it justify the immediate imposition of a requirement to mark and label packages containing lithium batteries. In its June 27, 2000, response to RSPA, the Board stated that it was disappointed with RSPA's response and that the possibility of an in-flight fire caused by damaged lithium batteries is unacceptable. Because of the circumstances of the LAX incident, the evidence cited in the safety recommendation letter that aircraft pallets containing large quantities of batteries may be unusually susceptible to overturning, and the concern that lithium batteries damaged during handling and placed in a cargo compartment may result in an in-flight fire, the Board continues to believe that lithium batteries should not be transported by passenger-carrying aircraft. RSPA has not responded to the concerns expressed in the Board's June 27, 2000, letter, nor has it indicated that it is taking action in response to Safety Recommendation A-99-81. Therefore, Safety Recommendation A-99-81 is classified "Closed-Unacceptable Action." If RSPA takes the recommended action to prohibit the transportation of lithium batteries on passenger-carrying aircraft and notifies the Safety Board of its action, the Board will consider reclassifying Safety Recommendations A-99-81 and -83.</p>	<p>From: NTSB</p>
<p>Response Date: 6/10/2002</p> <p>Response: Letter Mail Controlled 06/20/2002 3:13:33 PM MC# 2020614-- We recently published a Notice of Proposed Rulemaking (NPRM) entitled "Hazardous Materials: Transportation of Lithium Batteries." A copy of the NPRM is enclosed. In the NPRM, we propose changes to test methods for lithium batteries; revisions to exceptions for small batteries, including new marking requirements; elimination of certain exceptions for larger batteries; and other modifications. These proposed changes are intended to enhance the safe transportation of lithium batteries and harmonize our domestic requirements with changes recently made to international transportation standards in the United Nations Recommendations on the Transport of Dangerous Goods. We are continuing to reevaluate the hazards posed by lithium batteries in transportation. We are collecting information from lithium battery manufacturers, shippers, and Federal agencies with extensive experience in testing and use of lithium batteries. When we complete our evaluation, we will initiate any additional actions necessary to assure that lithium batteries are transported safely. We will keep you informed of our progress.</p>	<p>From: Addressee</p>

Note:

Please note that the Addressee's incoming letter's text is not posted until the NTSB's outgoing letter is posted as well.



Recommendations & Accomplishments

Rec #: A-99-082
NTSB Status: Open - Acceptable Response
Issue date: 11/16/1999
Accident Date: 4/28/1999
Source Event: INCIDENT
Location: LOS ANGELES California

Mode: AVIATION
Most Wanted List: No
Closed date:
Report Number:
Accident ID: DCA99MZ005

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Background Synopsis:

ON 4/28/99, A FIRE DESTROYED FREIGHT, INCLUDING LITHIUM BATTERIES, ON TWO AIRCRAFT CARGO PALLETS AT THE NORTHWEST AIRLINES CARGO FACILITY AT LOS ANGELES INT'L. AIRPORT. THE PALLETS HAD BEEN TAKEN OFF AN INBOUND PASSENGER-CARRYING FLIGHT FROM OSAKA, JAPAN. THE AIRCRAFT WAS A BOEING 747, OPERATED BY NORTHWEST AIRLINES AS FLIGHT 0026. THE NATIONAL TRANSPORTATION SAFETY BOARD'S INVESTIGATION OF THIS INCIDENT REVEALED THAT LITHIUM BATTERIES LIKELY PRESENT A SERIOUS FIRE HAZARD TO AIR TRANSPORTATION REQUIRING IMMEDIATE ATTENTION. CURRENTLY, LITHIUM BATTERIES OF THE TYPE INVOLVED IN THE APRIL 28 FIRE CAN BE TRANSPORTED ON BOTH PASSENGER-CARRYING AND CARGO-ONLY AIRCRAFT BUT ARE NOT CLASSIFIED AS A HAZARDOUS MATERIAL REQUIRING APPROPRIATE IDENTIFICATION, MARKING, LABELING, AND TESTING.

Recommendation:

THE NTSB RECOMMENDS THAT THE PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION (ORIGINALLY ISSUED TO RSPA): REQUIRE THAT PACKAGES CONTAINING LITHIUM BATTERIES BE IDENTIFIED AS HAZARDOUS MATERIALS, INCLUDING APPROPRIATE MARKING AND LABELING OF THE PACKAGES AND PROPER IDENTIFICATION IN SHIPPING DOCUMENTS, WHEN TRANSPORTED ON AIRCRAFT.

Safety Recommendation History for A-99-082 PHMSA

[Close](#)

Page 1 of 1
7 records found

<p>Response Date: 3/29/2000</p> <p>Response: Letter Mail Controlled 04/06/2000 3:33:05 PM MC# 2000498 AS NOTED IN OUR RESPONSE TO A-99-81, RSPA BELIEVES THAT THE RISKS PRESENTED BY LITHIUM BATTERIES CAN BE MITIGATED IF THE BATTERIES ARE APPROPRIATELY PACKAGED AND HANDLED IN TRANSPORTATION, AND THE HAZARDS OF DAMAGED LITHIUM BATTERIES ARE UNDERSTOOD BY CARGO HANDLING PERSONNEL. THEREFORE, BASED ON THE FINDINGS OF OUR EVALUATION, RSPA WILL INITIATE RULEMAKING ACTION AS NECESSARY TO ADDRESS THE CLASSIFICATION, HAZARD COMMUNICATION, PACKAGING AND OPERATIONAL CONTROLS NEEDED TO MINIMIZE THE RISKS ASSOCIATED WITH THE TRANSPORTATION OF LITHIUM BATTERIES ABOARD AIRCRAFT.</p>	<p>From: Addressee</p>
<p>Response Date: 6/27/2000</p> <p>Response: THE SAFETY BOARD IS PLEASED THAT RSPA IS TAKING THE ACTION RECOMMENDED. PENDING THE RESULTS OF RSPA'S EVALUATION AND THE INITIATION OF RULEMAKING, A-99-82 IS CLASSIFIED "OPEN--ACCEPTABLE RESPONSE."</p>	<p>From: NTSB</p>
<p>Response Date: 10/24/2000</p> <p>Response: Letter Mail Controlled 10/30/2000 1:38:06 PM MC# 2001605 On September 7, 2000 RSPA published an Advisory Notice, a copy of which is enclosed for your information, that: (1) Informed persons of the incident and the potential hazards that shipments of lithium batteries may present while in transportation, (2) Recommended actions to offerors and transporters to ensure the safety of such shipments, (3) Provided information concerning the current requirements for the transportation of lithium batteries, (4) Informed persons of recommendations that we received from the National Transportation Safety Board (NTSB) on the transportation of lithium batteries and our response to those recommendations, (5) Informed persons of the actions we have taken to date and plan to take in the future to address the hazards of these batteries, and (6) Provided information concerning initiatives being taken by members of the battery manufacturing and distribution industry to address concerns these batteries. relating to transportation of these batteries.</p>	<p>From: Addressee</p>
<p>Response Date: 6/13/2001</p> <p>Response: The Safety Board notes that although publishing the Advisory Notice is a commendable activity, it does not address the intent of these recommendations. The Board's June 27, 2000, response to RSPA's March 29, 2000, letter about these recommendations discussed the specific actions necessary to satisfy Safety Recommendations A-99-80, -82, and -83. In its March 29, 2000, letter, RSPA informed the Board that in coordination with the FAA, it is re-evaluating the hazards posed by lithium batteries in air transport and the safety measures necessary to protect an aircraft and its occupants, including an evaluation of the current testing requirements of the United Nations' Transport of Dangerous Goods Manual of Tests and Criteria and current regulatory requirements. Pending the results of RSPA's evaluation being conducted in response to Safety Recommendation A-99-80 and the initiation of</p>	<p>From: NTSB</p>

rulemaking, Safety Recommendation A-99-82 remains classified "Open--Acceptable Response."

Response Date:
6/10/2002

From:
Addressee

Response:

Letter Mail Controlled 06/20/2002 3:13:33 PM MC# 2020614 We recently published a Notice of Proposed Rulemaking (NPRM) entitled "Hazardous Materials: Transportation of Lithium Batteries." A copy of the NPRM is enclosed. In the NPRM, we propose changes to test methods for lithium batteries; revisions to exceptions for small batteries, including new marking requirements; elimination of certain exceptions for larger batteries; and other modifications. These proposed changes are intended to enhance the safe transportation of lithium batteries and harmonize our domestic requirements with changes recently made to international transportation standards in the United Nations Recommendations on the Transport of Dangerous Goods. We are continuing to reevaluate the hazards posed by lithium batteries in transportation. We are collecting information from lithium battery manufacturers, shippers, and Federal agencies with extensive experience in testing and use of lithium batteries. When we complete our evaluation, we will initiate any additional actions necessary to assure that lithium batteries are transported safely. We will keep you informed of our progress. If you have any questions, please contact me or Suzanne TeBeau, Associate Administrator for Policy and Congressional Affairs, at (202) 366-4831

Response Date:
9/26/2002

From:
NTSB

Response:

On April 2, 2002, RSPA published a notice of proposed rulemaking (NPRM) titled "Hazardous Materials: Transportation of Lithium Batteries," which proposes changes to test methods for lithium batteries; revisions to exceptions for small batteries, including new marking requirements; elimination of certain exceptions for larger batteries; and other modifications. RSPA reports that it is continuing to reevaluate the hazards posed by lithium batteries in transportation by collecting information from lithium battery manufacturers, shippers, and federal agencies with extensive experience in testing and use of lithium batteries. The NPRM also proposes requirements that would enhance the identification of packages of lithium batteries and provide guidance if a package were damaged. However, the proposed requirements do not fully address the Safety Board's concern in Safety Recommendation A-99-82 that cargo handlers need to be properly alerted to the dangers posed by lithium batteries. If cargo handlers can determine from shipping documents and the marking and labeling on packages of lithium batteries that the contents contain a hazardous material, they are more likely to handle the package carefully. The Board believes that a package containing more than 12 small lithium batteries or 24 lithium cells should be classified as a Department of Transportation Class 9 miscellaneous hazardous material, which is subject to the requirements in the hazardous materials regulations for labeling of the package and shipping papers. The Board notes that RSPA is continuing its analysis and evaluation of issues related to air shipment of packages of lithium batteries. The Board urges RSPA to consider the need to classify lithium batteries as a Class 9 hazardous material. Pending issuance of such a requirement, Safety Recommendation A-99-82 is classified "Open--Acceptable Response."

Response Date:
2/28/2005

From:
Addressee

Response:

In its 2/28/2005 report to Congress, "Open Statutory Mandates Regarding Pipeline and Hazardous Materials Safety," the DOT wrote: Advisory notice issued in September 2000, followed by NPRM in April 2002 and interim final rule on December 15, 2004.

Note:

Please note that the Addressee's incoming letter's text is not posted until the NTSB's outgoing letter is posted as well.



Recommendations & Accomplishments

Rec #: A-99-083
NTSB Status: Closed - Acceptable Alternate Action
Issue date: 11/16/1999
Accident Date: 4/28/1999
Source Event: INCIDENT
Location: LOS ANGELES California

Mode: AVIATION
Most Wanted List: No
Closed date: 9/26/2002
Report Number:
Accident ID: DCA99MZ005

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Background Synopsis:

ON 4/28/99, A FIRE DESTROYED FREIGHT, INCLUDING LITHIUM BATTERIES, ON TWO AIRCRAFT CARGO PALLETS AT THE NORTHWEST AIRLINES CARGO FACILITY AT LOS ANGELES INT'L. AIRPORT. THE PALLETS HAD BEEN TAKEN OFF AN INBOUND PASSENGER-CARRYING FLIGHT FROM OSAKA, JAPAN. THE AIRCRAFT WAS A BOEING 747, OPERATED BY NORTHWEST AIRLINES AS FLIGHT 0026. THE NATIONAL TRANSPORTATION SAFETY BOARD'S INVESTIGATION OF THIS INCIDENT REVEALED THAT LITHIUM BATTERIES LIKELY PRESENT A SERIOUS FIRE HAZARD TO AIR TRANSPORTATION REQUIRING IMMEDIATE ATTENTION. CURRENTLY, LITHIUM BATTERIES OF THE TYPE INVOLVED IN THE APRIL 28 FIRE CAN BE TRANSPORTED ON BOTH PASSENGER-CARRYING AND CARGO-ONLY AIRCRAFT BUT ARE NOT CLASSIFIED AS A HAZARDOUS MATERIAL REQUIRING APPROPRIATE IDENTIFICATION, MARKING, LABELING, AND TESTING.

Recommendation:

THE NTSB RECOMMENDS THAT THE RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION: PENDING COMPLETION OF YOUR EVALUATION OF THE FIRE HAZARDS POSED BY LITHIUM BATTERIES IN AN AIR TRANSPORTATION ENVIRONMENT, NOTIFY THE INTERNATIONAL CIVIL AVIATION ORGANIZATION'S DANGEROUS GOODS PANEL ABOUT THE CIRCUMSTANCES OF THE FIRE IN THE NORTHWEST AIRLINES CARGO FACILITY AT LOS ANGELES INTERNATIONAL AIRPORT ON 4/28/99. ALSO PENDING COMPLETION OF YOUR EVALUATION OF THE FIRE HAZARDS POSED BY LITHIUM BATTERIES IN AN AIR TRANSPORTATION ENVIRONMENT, INITIATE ACTION THROUGH THE DANGEROUS GOODS PANEL TO REVISE THE TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORTATION OF DANGEROUS GOODS BY AIR TO PROHIBIT THE TRANSPORTATION OF LITHIUM BATTERIES ON PASSENGER-CARRYING AIRCRAFT.

Safety Recommendation History for A-99-083 RSPA

Page 1 of 1
6 records found

Response Date: 3/29/2000 Response: Letter Mail Controlled 04/06/2000 3:33:05 PM MC# 2000498 IN A UNITED NATIONS WORKING GROUP MEETING THAT WAS HELD MARCH 13-15, 2000 IN OTTAWA, CANADA, RSPA RECOMMENDED THAT THE UNITED NATIONS RECOMMENDATIONS ON THE TRANSPORT OF DANGEROUS GOODS (LTN RECOMMENDATIONS) BE REVISED SO THAT ALL LITHIUM BATTERIES BE SUBJECT TO THE UN TEST MANUAL AND THAT SMALL LITHIUM BATTERIES BE REGULATED AS HAZARDOUS MATERIALS. A COPY OF THE RECOMMENDED PROPOSAL IS ATTACHED FOR YOUR INFORMATION. RSPA IS ALSO TAKING STEPS TO NOTIFY THE INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) DANGEROUS GOODS PANEL OF THE LAX INCIDENT. RSPA ANTICIPATES TRANSMITTING THE NOTIFICATION WITHIN THE NEXT COUPLE OF WEEKS. RSPA WILL INITIATE ANY ADDITIONAL PROPOSALS TO AMEND THE INTERNATIONAL REQUIREMENTS FOR THE TRANSPORTATION OF LITHIUM BATTERIES, INCLUDING THE ICAO TECHNICAL INSTRUCTIONS ON THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR, CONSISTENT WITH ANY AMENDMENTS TO THE HAZARDOUS MATERIALS REGULATIONS.	From: Addressee
Response Date: 6/27/2000 Response: THE SAFETY BOARD IS PLEASED THAT RSPA IS TAKING THE ACTIONS RECOMMENDED. PENDING REVISION TO THE UN RECOMMENDATIONS SO THAT ALL LITHIUM BATTERIES ARE SUBJECT TO THE UN TEST MANUAL AND SO THAT SMALL LITHIUM BATTERIES ARE REGULATED AS HAZARDOUS MATERIALS, AND PENDING NOTIFICATION OF THE ICAO DANGEROUS GOODS PANEL ABOUT THE LAX INCIDENT, A-99-83 AND -84 ARE CLASSIFIED "OPEN--ACCEPTABLE RESPONSE."	From: NTSB
Response Date: 10/24/2000 Response: Letter Mail Controlled 10/30/2000 1:38:06 PM MC# 2001605 On September 7, 2000 RSPA published an Advisory Notice, a copy of which is enclosed for your information, that: (1) Informed persons of the incident and the potential hazards that shipments of lithium batteries may present while in transportation, (2) Recommended actions to offerors and transporters to ensure the safety of such shipments, (3) Provided information concerning the current requirements for the transportation of lithium batteries, (4) Informed persons of recommendations that we received from the National Transportation Safety Board (NTSB) on the transportation of lithium batteries and our response to those recommendations, (5) Informed persons of the actions we have taken to date and plan to take in the future to address the hazards of these batteries, and (6) Provided information concerning initiatives being taken by members of the battery manufacturing and distribution industry to address concerns these batteries. relating to transportation of these batteries.	From: Addressee
Response Date: 6/13/2001 Response: The Safety Board notes that in the Federal Register Advisory Notice, RSPA states on page 54338 that it notified the International Civil Aviation Organization (ICAO) Dangerous Goods Panel of the accident that prompted these recommendations and initiated proposals to the United Nations' Recommendations on the Transportation of Dangerous Goods	From: NTSB

(UN Recommendations). However, RSPA does not state what they have proposed to the UN Recommendations. Further, because RSPA has stated that it cannot justify an immediate prohibition on the transportation of lithium batteries on passenger-carrying aircraft, the Board is concerned that RSPA's proposals are not responsive to Safety Recommendation A-99-83. Pending revision to the Technical Instructions for the Safe Transportation of Dangerous Goods by Air to prohibit the transportation of lithium batteries on passenger-carrying aircraft, Safety Recommendation A-99-83 is classified "Open-Unacceptable Response." If RSPA takes the recommended action to prohibit the transportation of lithium batteries on passenger-carrying aircraft and notifies the Safety Board of its action, the Board will consider reclassifying Safety Recommendations A-99-81 and -83.

Response Date:
6/10/2002

From:
Addressee

Response:

Letter Mail Controlled 06/20/2002 3:13:33 PM MC# 2020614 We recently published a Notice of Proposed Rulemaking (NPRM) entitled "Hazardous Materials: Transportation of Lithium Batteries." A copy of the NPRM is enclosed. In the NPRM, we propose changes to test methods for lithium batteries; revisions to exceptions for small batteries, including new marking requirements; elimination of certain exceptions for larger batteries; and other modifications. These proposed changes are intended to enhance the safe transportation of lithium batteries and harmonize our domestic requirements with changes recently made to international transportation standards in the United Nations Recommendations on the Transport of Dangerous Goods. We are continuing to reevaluate the hazards posed by lithium batteries in transportation. We are collecting information from lithium battery manufacturers, shippers, and Federal agencies with extensive experience in testing and use of lithium batteries. When we complete our evaluation, we will initiate any additional actions necessary to assure that lithium batteries are transported safely. We will keep you informed of our progress. If you have any questions, please contact me or Suzanne TeBeau, Associate Administrator for Policy and Congressional Affairs, at (202) 366-4831

Response Date:
9/26/2002

From:
NTSB

Response:

On April 2, 2002, RSPA published a notice of proposed rulemaking (NPRM) titled "Hazardous Materials: Transportation of Lithium Batteries," which proposes changes to test methods for lithium batteries; revisions to exceptions for small batteries, including new marking requirements; elimination of certain exceptions for larger batteries; and other modifications. RSPA reports that it is continuing to reevaluate the hazards posed by lithium batteries in transportation by collecting information from lithium battery manufacturers, shippers, and federal agencies with extensive experience in testing and use of lithium batteries. The NPRM letter is not directly relevant to Safety Recommendations A-99-83 and -84. However, these recommendations were discussed at the July 18, 2002, meeting on open safety recommendations. RSPA stated that it has taken the following actions in response to those two recommendations: the publication of a safety advisory in the Federal Register on September 7, 2000, regarding the transportation of lithium batteries; notification of the ICAO Dangerous Goods Panel as specified in both safety recommendations; and revisions to the ICAO Technical Instructions for the Transport of Dangerous Goods by Air that are consistent with the changes proposed in the NPRM (i.e., incorporation of UN testing criteria for packaging for lithium batteries, warning labels and marking for packages of lithium batteries, and emergency instructions to be included with the shipping documents for lithium batteries). Regarding Safety Recommendation A-99-83, RSPA stated in the NPRM and reconfirmed during our July 18 meeting that its evaluation of the hazards of lithium batteries was ongoing, and it would initiate additional action if necessary to address other hazards identified during this evaluation. The commitment by RSPA to seek additional international restrictions on air shipment of lithium batteries if RSPA's analysis of the fire hazards indicates that such action is warranted, is an acceptable alternative method of addressing the recommendation. Because RSPA brought this issue before the international community and has committed to initiate additional action based on its completed evaluation, Safety Recommendation A-99-83 is classified "Closed--Acceptable Alternate Action."

Note:

Please note that the Addressee's incoming letter's text is not posted until the NTSB's outgoing letter is posted as well.



Recommendations & Accomplishments

Rec #: A-99-084
NTSB Status: Closed - Acceptable Action
Issue date: 11/16/1999
Accident Date: 4/28/1999
Source Event: INCIDENT
Location: LOS ANGELES California

Mode: AVIATION
Most Wanted List: No
Closed date: 9/26/2002

Report Number:
Accident ID: DCA99MZ005

[View Status by Addressee](#)

[View NTSB Recommendation Letter \[PDF\]](#)

Background Synopsis:

ON 4/28/99, A FIRE DESTROYED FREIGHT, INCLUDING LITHIUM BATTERIES, ON TWO AIRCRAFT CARGO PALLETS AT THE NORTHWEST AIRLINES CARGO FACILITY AT LOS ANGELES INT'L. AIRPORT. THE PALLETS HAD BEEN TAKEN OFF AN INBOUND PASSENGER-CARRYING FLIGHT FROM OSAKA, JAPAN. THE AIRCRAFT WAS A BOEING 747, OPERATED BY NORTHWEST AIRLINES AS FLIGHT 0026. THE NATIONAL TRANSPORTATION SAFETY BOARD'S INVESTIGATION OF THIS INCIDENT REVEALED THAT LITHIUM BATTERIES LIKELY PRESENT A SERIOUS FIRE HAZARD TO AIR TRANSPORTATION REQUIRING IMMEDIATE ATTENTION. CURRENTLY, LITHIUM BATTERIES OF THE TYPE INVOLVED IN THE APRIL 28 FIRE CAN BE TRANSPORTED ON BOTH PASSENGER-CARRYING AND CARGO-ONLY AIRCRAFT BUT ARE NOT CLASSIFIED AS A HAZARDOUS MATERIAL REQUIRING APPROPRIATE IDENTIFICATION, MARKING, LABELING, AND TESTING.

Recommendation:

THE NTSB RECOMMENDS THAT THE RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION: INITIATE ACTION THROUGH THE DANGEROUS GOODS PANEL TO REVISE THE TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORTATION OF DANGEROUS GOODS BY AIR TO REQUIRE THAT PACKAGES CONTAINING LITHIUM BATTERIES BE IDENTIFIED AS HAZARDOUS MATERIALS WHEN TRANSPORTED ON AIRCRAFT.

Safety Recommendation History for A-99-084 RSPA

Page 1 of 1
6 records found

<p>Response Date: 3/29/2000</p> <p>Response: Letter Mail Controlled 04/06/2000 3:33:05 PM MC# 2000498 IN A UNITED NATIONS WORKING GROUP MEETING THAT WAS HELD MARCH 13-15, 2000 IN OTTAWA, CANADA, RSPA RECOMMENDED THAT THE UNITED NATIONS RECOMMENDATIONS ON THE TRANSPORT OF DANGEROUS GOODS (LTN RECOMMENDATIONS) BE REVISED SO THAT ALL LITHIUM BATTERIES BE SUBJECT TO THE UN TEST MANUAL AND THAT SMALL LITHIUM BATTERIES BE REGULATED AS HAZARDOUS MATERIALS. A COPY OF THE RECOMMENDED PROPOSAL IS ATTACHED FOR YOUR INFORMATION. RSPA IS ALSO TAKING STEPS TO NOTIFY THE INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) DANGEROUS GOODS PANEL OF THE LAX INCIDENT. RSPA ANTICIPATES TRANSMITTING THE NOTIFICATION WITHIN THE NEXT COUPLE OF WEEKS. RSPA WILL INITIATE ANY ADDITIONAL PROPOSALS TO AMEND THE INTERNATIONAL REQUIREMENTS FOR THE TRANSPORTATION OF LITHIUM BATTERIES, INCLUDING THE ICAO TECHNICAL INSTRUCTIONS ON THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR, CONSISTENT WITH ANY AMENDMENTS TO THE HAZARDOUS MATERIALS REGULATIONS.</p>	<p>From: Addressee</p>
<p>Response Date: 6/27/2000</p> <p>Response: THE SAFETY BOARD IS PLEASED THAT RSPA IS TAKING THE ACTIONS RECOMMENDED. PENDING REVISION TO THE UN RECOMMENDATIONS SO THAT ALL LITHIUM BATTERIES ARE SUBJECT TO THE UN TEST MANUAL AND SO THAT SMALL LITHIUM BATTERIES ARE REGULATED AS HAZARDOUS MATERIALS, AND PENDING NOTIFICATION OF THE ICAO DANGEROUS GOODS PANEL ABOUT THE LAX INCIDENT, A-99-83 AND -84 ARE CLASSIFIED "OPEN--ACCEPTABLE RESPONSE."</p>	<p>From: NTSB</p>
<p>Response Date: 10/24/2000</p> <p>Response: Letter Mail Controlled 10/30/2000 1:38:06 PM MC# 2001605 On September 7, 2000 RSPA published an Advisory Notice, a copy of which is enclosed for your information, that: (1) Informed persons of the incident and the potential hazards that shipments of lithium batteries may present while in transportation, (2) Recommended actions to offerors and transporters to ensure the safety of such shipments, (3) Provided information concerning the current requirements for the transportation of lithium batteries, (4) Informed persons of recommendations that we received from the National Transportation Safety Board (NTSB) on the transportation of lithium batteries and our response to those recommendations, (5) Informed persons of the actions we have taken to date and plan to take in the future to address the hazards of these batteries, and (6) Provided information concerning initiatives being taken by members of the battery manufacturing and distribution industry to address concerns these batteries. relating to transportation of these batteries.</p>	<p>From: Addressee</p>
<p>Response Date: 6/13/2001</p> <p>Response: The Safety Board notes that although publishing the Advisory Notice is a commendable activity, it does not address the intent of these recommendations. . In its March 29, 2000, letter, RSPA informed the Board that in coordination with the FAA, it is re-evaluating the hazards posed by lithium batteries in air transport and the safety measures necessary to protect an aircraft and its occupants, including an evaluation of the current testing requirements of the United Nations'</p>	<p>From: NTSB</p>

Transport of Dangerous Goods Manual of Tests and Criteria and current regulatory requirements. Pending revision by the Dangerous Goods Panel to the Technical Instructions for the Safe Transportation of Dangerous Goods by Air to require that packages containing lithium batteries be identified as hazardous materials when transported on aircraft, Safety Recommendation A-99-84 remains classified "Open-Acceptable Response."

Response Date:
6/10/2002

From:
Addressee

Response:

Letter Mail Controlled 06/20/2002 3:13:33 PM MC# 2020614 We recently published a Notice of Proposed Rulemaking (NPRM) entitled "Hazardous Materials: Transportation of Lithium Batteries." A copy of the NPRM is enclosed. In the NPRM, we propose changes to test methods for lithium batteries; revisions to exceptions for small batteries, including new marking requirements; elimination of certain exceptions for larger batteries; and other modifications. These proposed changes are intended to enhance the safe transportation of lithium batteries and harmonize our domestic requirements with changes recently made to international transportation standards in the United Nations Recommendations on the Transport of Dangerous Goods. We are continuing to reevaluate the hazards posed by lithium batteries in transportation. We are collecting information from lithium battery manufacturers, shippers, and Federal agencies with extensive experience in testing and use of lithium batteries. When we complete our evaluation, we will initiate any additional actions necessary to assure that lithium batteries are transported safely. We will keep you informed of our progress. If you have any questions, please contact me or Suzanne TeBeau, Associate Administrator for Policy and Congressional Affairs, at (202) 366-4831

Response Date:
9/26/2002

From:
NTSB

Response:

On April 2, 2002, RSPA published a notice of proposed rulemaking (NPRM) titled "Hazardous Materials: Transportation of Lithium Batteries," which proposes changes to test methods for lithium batteries; revisions to exceptions for small batteries, including new marking requirements; elimination of certain exceptions for larger batteries; and other modifications. RSPA reports that it is continuing to reevaluate the hazards posed by lithium batteries in transportation by collecting information from lithium battery manufacturers, shippers, and federal agencies with extensive experience in testing and use of lithium batteries. The NPRM letter is not directly relevant to Safety Recommendations A-99-83 and -84. However, these recommendations were discussed at the July 18, 2002, meeting on open safety recommendations. RSPA stated that it has taken the following actions in response to those two recommendations: the publication of a safety advisory in the Federal Register on September 7, 2000, regarding the transportation of lithium batteries; notification of the ICAO Dangerous Goods Panel as specified in both safety recommendations; and revisions to the ICAO Technical Instructions for the Transport of Dangerous Goods by Air that are consistent with the changes proposed in the NPRM (i.e., incorporation of UN testing criteria for packaging for lithium batteries, warning labels and marking for packages of lithium batteries, and emergency instructions to be included with the shipping documents for lithium batteries). Regarding Safety Recommendation A-99-84, the Safety Board acknowledges that RSPA initiated this proposal to the ICAO Dangerous Goods Panel as recommended. Additionally, RSPA staff provided examples of the warning labels developed by the battery industry and that shippers of lithium batteries will voluntarily place on packages of lithium batteries. The Board believes that the use of these labels in conjunction with recent revisions to UN and ICAO standards to mark packages of lithium batteries and to include emergency instructions with the shipping documents is responsive to the recommendation. Consequently, Safety Recommendation A-99-84 is classified "Closed--Acceptable Action."



Recommendations & Accomplishments

Rec #: A-99-085
NTSB Status: Open - Acceptable Response
Issue date: 11/16/1999
Accident Date: 4/28/1999
Source Event: INCIDENT
Location: LOS ANGELES California

Mode: AVIATION
Most Wanted List: No
Closed date:
Report Number:
Accident ID: DCA99MZ005

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Background Synopsis:

ON 4/28/99, A FIRE DESTROYED FREIGHT, INCLUDING LITHIUM BATTERIES, ON TWO AIRCRAFT CARGO PALLETS AT THE NORTHWEST AIRLINES CARGO FACILITY AT LOS ANGELES INT'L. AIRPORT. THE PALLETS HAD BEEN TAKEN OFF AN INBOUND PASSENGER-CARRYING FLIGHT FROM OSAKA, JAPAN. THE AIRCRAFT WAS A BOEING 747, OPERATED BY NORTHWEST AIRLINES AS FLIGHT 0026. THE NATIONAL TRANSPORTATION SAFETY BOARD'S INVESTIGATION OF THIS INCIDENT REVEALED THAT LITHIUM BATTERIES LIKELY PRESENT A SERIOUS FIRE HAZARD TO AIR TRANSPORTATION REQUIRING IMMEDIATE ATTENTION. CURRENTLY, LITHIUM BATTERIES OF THE TYPE INVOLVED IN THE APRIL 28 FIRE CAN BE TRANSPORTED ON BOTH PASSENGER-CARRYING AND CARGO-ONLY AIRCRAFT BUT ARE NOT CLASSIFIED AS A HAZARDOUS MATERIAL REQUIRING APPROPRIATE IDENTIFICATION, MARKING, LABELING, AND TESTING.

Recommendation:

THE NTSB RECOMMENDS THAT THE FAA: WITH THE RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION, EVALUATE THE FIRE HAZARDS POSED BY LITHIUM BATTERIES IN AN AIR TRANSPORTATION ENVIRONMENT AND REQUIRE THAT APPROPRIATE SAFETY MEASURES BE TAKEN TO PROTECT AIRCRAFT AND OCCUPANTS. THE EVALUATION SHOULD CONSIDER THE TESTING REQUIREMENTS FOR LITHIUM BATTERIES IN THE UNITED NATION'S TRANSPORT OF DANGEROUS GOODS MANUAL OF TESTS AND CRITERIA, THE INVOLVEMENT OF PACKAGES CONTAINING LARGE QUANTITIES OF TIGHTLY PACKED BATTERIES IN A CARGO COMPARTMENT FIRE, AND THE POSSIBLE EXPOSURE OF BATTERIES TO ROUGH HANDLING IN AN AIR TRANSPORTATION ENVIRONMENT, INCLUDING BEING CRUSHED OR ABRADED OPEN.

Safety Recommendation History for A-99-085 FAA

[Close](#)

Page 1 of 1
6 records found

Response Date: 1/5/2000		From: Addressee
Response: Letter Mail Controlled 01/10/2000 4:40:27 PM MC# 2000042 THE FAA WILL WORK WITH THE RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION (RSPA) IN EVALUATING THE RISKS POSED BY THESE BATTERIES WHEN TRANSPORTED BY AIR. THIS RECOMMENDATION IS IDENTICAL TO A-99-80 ISSUED TO RSPA ON 11/16/99. SINCE RSPA IS THE LEAD AGENCY ON THIS ISSUE, IT IS MORE APPROPRIATE THAT RSPA KEEP THE BOARD INFORMED OF THE STATUS AND OUTCOME OF THIS EFFORT AS OPPOSED TO THE FAA. CONSEQUENTLY, I ASK THAT YOU CLASSIFY A-99-85 IN A "CLOSED" STATUS.		
Response Date: 4/13/2000		From: NTSB
Response: WHILE THE FAA AND RSPA AGREE THAT RSPA SHOULD BE THE LEAD AGENCY FOR THE DEPT. OF TRANSPORTATION ON THIS RECOMMENDATION, PART OF THE RECOMMENDATION ASKS THE FAA TO "...REQUIRE THAT APPROPRIATE SAFETY MEASURES BE TAKEN TO PROTECT AIRCRAFT AND OCCUPANTS.." THE BOARD BELIEVES THAT FOLLOWING THE RECOMMENDED EVALUATION OF THE FIRE HAZARDS POSED BY LITHIUM BATTERIES, THE FAA WILL HAVE A ROLE IN ANY ACTION THAT IS REQUIRED. THEREFORE, THE BOARD CLASSIFIES A-99-85 "OPEN--ACCEPTABLE RESPONSE," PENDING REPORTS BY RSPA AND ANY ACTION THAT RSPA AND THE FAA PLAN TO TAKE.		
Response Date: 2/13/2003		From: Addressee
Response: Via Email to NTSB staff: RSPA has informed the FAA that the Tech Center is in the final testing phase of the lithium batteries. The first draft of the evaluation is expected in approximately 2 months. It will be determined what additional safety measures will be required after review of the report.		
Response Date: 1/12/2005		From: Addressee
Response: Letter Mail Controlled 1/18/2005 11:54:21 AM MC# 2050016 The Research and Special Programs Administration (RSPA) issued an Interim Final Rule to prohibit shipment of primary (nonrechargeable) lithium batteries as cargo on board passenger-carrying aircraft and equipment containing or packed with large primary lithium batteries. The ban goes into effect December 29, 2004, and will apply to all U.S. carrier flights and those of foreign carriers into and out of the U.S. I have enclosed a copy of the final rule for the Board's information. I have also enclosed a copy of the report entitled "Flammability Assessment of Bulk-Packed, Nonrechargeable Lithium Primary Batteries in Transport Category Aircraft." This report documents the findings of a series of tests conducted to determine the flammability characteristics of primary lithium batteries and the dangers associated with shipping them in bulk on commercial transport-category aircraft. I believe that the FAA has satisfactorily responded to this safety recommendation, and I look forward to your response.		
Response Date: 2/28/2005		From: Addressee
Response: In its 2/28/2005 report to Congress, "Open Statutory Mandates Regarding Pipeline and Hazardous Materials Safety," the DOT wrote:		

Advisory notice issued in September 2000, followed by NPRM in April 2002 and interim final rule on December 15, 2004. FAA issued a close-out letter requesting classification as "closed, acceptable action."

Response Date:
7/6/2005

From:
NTSB

Response:

The Safety Board notes that in June 2004, the FAA published a report titled Flammability Assessment of Bulk-Packed, Nonrechargeable Lithium Primary Batteries in Transport Category Aircraft, DOT/FAA/AR-04/28, by Harry Webster. This report documents the results of a study conducted at the FAA's William J. Hughes Technical Center that evaluated the fire risk posed by shipment on airplanes of primary (rechargeable) lithium batteries. That study found that such shipments pose a significant fire risk, and on December 29, 2004, RSPA issued an interim final rule to prohibit the shipment of primary lithium batteries as cargo on board passenger-carrying aircraft. The interim final rule also establishes restrictions for shipping on board passenger-carrying aircraft equipment containing or packed with primary lithium batteries. Under the interim final rule, the number of lithium batteries contained or packed in such equipment cannot exceed the number of batteries needed to power the equipment, and the lithium content of each battery cannot exceed a specified threshold. Further, the gross weight of the package containing the equipment item cannot exceed 5 kg (11 lbs). The ban applies to all U.S. carrier flights and those of foreign carriers into and out of the United States. The FAA study, and the RSPA rulemaking complete action on this recommendation with respect to primary lithium batteries. However, the risks posed by shipment of secondary (rechargeable) lithium batteries remains unclear. Different chemistry is involved with operation of these batteries, and both the FAA study and RSPA regulation excluded secondary lithium batteries. However, in the new regulation, RSPA stated in Section IV D, "Secondary Lithium (Rechargeable/Lithium Ion) Batteries and Cells," that the FAA and RSPA have concerns with secondary lithium batteries, but the risks of shipping these batteries with respect to their ability to burn in an atmosphere containing Halon (the fire extinguishing agent used in aircraft cargo holds) are unclear. That section also states that RSPA and the FAA will continue to study the hazards associated with shipment of secondary lithium batteries. The Safety Board notes that it is currently investigating an incident involving a fire in a package of secondary lithium ion batteries that occurred August 7, 2004, at the FedEx terminal in Memphis, Tennessee. Although the FAA and RSPA have fully responded to this recommendation with respect to primary lithium batteries, the question of the fire risk posed by secondary lithium batteries remains. Pending investigation of the fire risks posed by the shipment of secondary lithium batteries, and appropriate rulemaking as a result, Safety Recommendation A-99-85 remains classified "Open--Acceptable Response."

Note:

Please note that the Addressee's incoming letter's text is not posted until the NTSB's outgoing letter is posted as well.

